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miniReview Article

# Autoaggressive nail disorders

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## ABSTRACT

Autoaggressive nail disorders involve a spectrum of self-inflicted conditions resulting from repetitive behaviors directed at the nail, commonly secondary to impaired emotional regulation. These disorders fall within the category of body-focused repetitive behaviors and frequently overlap with psychiatry and dermatology. Common disorders include onychophagia, onychotillomania, habit-tic deformity, Heller's median canaliform nail dystrophy, onycholysis semilunaris, and onychodaknomania. Complications may range from paronychia, melanonychia, to permanent nail bed damage, and in severe cases, loss of the terminal phalanx. Diagnosis is based on clinical evaluation and recognition of behavioral patterns. Management requires patient education, behavioral modification therapy, and psychiatric intervention. Increased awareness of these disorders is essential to avoid misdiagnosis, provide timely treatment, and improve patient outcomes.

**Key words:** Autoaggressive nail disorders, Body-focused repetitive behaviors, Onychophagia, Onychotillomania, Habit-tic deformity

Autoaggressive nail disorders represent a broad spectrum of clinical manifestations self-inflicted because of impaired emotional regulation [1]. Patients induce changes in previously healthy nails, leading to infections or permanent deformities [2]. Self-aggression nail disorders are classified within the category of body-focused repetitive behaviors (BFRB) and constitute an overlap between dermatology and psychiatry [3-5]. BFRBs are a group of disorders that provide temporary relief in those with anxiety, tension, or boredom, and involve actions such as biting, sucking, chewing, picking, excessive nail trimming, or filing of the nails [2]. Autoaggressive nail disorders include changes related to digital sucking, onychophagia, onychodystrophy, onychotillomania, and excessive or obsessive manicuring, which may result in onycholysis, onychoteiromania, onychotemnomania, Heller's median canaliform nail dystrophy and onychodaknomania, the latter being a frankly psychotic behavior [1,2,6]. In addition to serving as a protective barrier and being used for cosmetic purposes, the nails can also reflect the patient's mental state [4].

## ONYCHOPHAGIA

Onychophagia is defined as the compulsive habit of biting, chewing, or gnawing the free edge of the nail [5-7]. According to the diagnostic and statistical *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5)*, it is classified under the category of *Other Specified Obsessive-Compulsive and Related Disorders* [5,7]. It can be associated with, and exacerbated by, psychiatric disorders such as anxiety and obsessive-compulsive disorder (OCD) [7]. Diagnosis can be challenging due to the stigma experienced by patients; it is rarely a chief complaint during consultation but often an incidental finding [8]. Because of the low number of patients seeking care for onychophagia, its prevalence is likely underestimated, affecting approximately 20–30% of the general population, with peak incidence during childhood and adolescence [3,5,7,8]. The prognosis is poorer in adults [7]. Onychophagia may affect up to 60% of children and 45% of adolescents [6]. In affected individuals, all fingernails are typically involved with a symmetrical pattern [5,7]. The nails

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are characteristically short, brittle, and irregular. The hyponychium is dorsally distorted, which produces a distal nail fold, shortened nail bed, linear subungual hemorrhages, and even complete absence of cuticle [6,7] (Figs. 1a – 1g). Additional findings may include macrolunula, transverse grooves, and pterygium formation [8]. The most common complication is acute paronychia [5]. Other complications of onychophagia include irreversible nail bed shortening due to proximal migration, formation of a distal nail fold, longitudinal melanonychia, acute and chronic paronychia that may progress to osteomyelitis, and epidermal inclusion cysts [5,6,7,9]. Onychophagia also predisposes and facilitates transmission of subungual warts and predisposes to herpetic whitlow [7,9]. Multiple oral and dental complications have been described, including gingivitis, incisor wear, abscess formation, and infections [7,8]. Differential diagnoses include nail lichen planus, psoriasis, onychotillomania, nail-patella syndrome, and chronic paronychia [7,9]. Non-pharmacological interventions are considered first-line therapy and include applying bitter-tasting nail polish, behavioral modification techniques, using substitute objects for manual activity, and wearing gloves, among others. The use of N-acetylcysteine has been described as a second-line treatment option, especially in patients with bipolar disorder [6-8].

## ONYCHOTILLOMANIA

Onychotillomania is defined as self-induced nail damage, characterized by repetitive behaviors such as excessive picking, manipulation, or removal of the nail plate, leading to onychodystrophy [3-6,8]. The use of sharp objects such as nail files, clippers, knives, or toothpicks is often associated [4,5,8]. Similarly to onychophagia, it is classified under the category of body-focused repetitive behaviors (BFRB). Onychotillomania has been associated with OCD, depression, suicidal behavior, anxiety, and psychosis [4,8]. In a study conducted in 339 young adults, the incidence of onychotillomania reported was 0.9% [10]. The approximate mean age at diagnosis is 47.5 years, and this condition occurs 1.5 times more frequently in men than women [3,4]. Diagnosis is established through clinical history and physical examination [4]. Clinically, the nail plate exhibits dystrophy and atypical morphology, including transverse ridges, rough and irregular areas, increased fragility, thinning, onychoatrophy, macrolunula, and melanonychia [3,4]. The involved nails are typically asymmetric, and not all nails are affected, only a few [4,8]. Often, the periungual skin, especially the cuticle, is affected and may appear erythematous, edematous, eroded, or crusted [4,8,9]. Dermatoscopic

**Figure 1:** (a) Panoramic view of onychophagia affecting all ten fingernails. (b and c) Close-up view of onychophagia of the left hand. (d) Dermoscopy of the left fifth digit's fingernail showing blood vessels in the hyponychium, surface irregularities, and blood scabs. (e) Onychophagia of both thumbnails with secondary discoloration. (f) Nail dermoscopy showing transverse ridges and splinter hemorrhages. (g) Nail dermoscopy showing melanonychia secondary to onychophagia.

features commonly observed include scales, the absence of the nail plate, wavy lines, and both linear and punctuate hemorrhages, among others [4,10]. Reported complications of onychotillomania include melanonychia, chronic paronychia, and anonychia [4,9]. Structural damage predisposes and facilitates the transmission of subungual warts and predisposes to herpetic whitlow [7,8]. Differential diagnoses include onychophagia, lichen planus, psoriasis, trachyonychia, acquired epidermolysis bullosa, paronychia, and onychomycosis [4,9]. Other autoaggressive nail disorders related to onychotillomania include onychotemnomania and onychoteiromania [8]. Onychotemnomania is defined as the excessive trimming of the nails to an extremely short length for pleasure, whereas onychoteiromania refers to excessive nail filing with the use of a file or hard surfaces, such as wood, to completely smoothen the nail plate [2,8]. Treatment of onychotillomania is like that of onychophagia, having non-pharmacological interventions as the first line of treatment such as: bitter nail polish, occlusive bandaging, and behavioral modification techniques such as habit reversal therapy [4]. Pharmacotherapy involves the use of selective serotonin reuptake inhibitors (SSRIs) and tricyclic antidepressants (TCAs) and are primarily indicated for patients with associated psychiatric comorbidities [3].

## HABIT-TIC DEFORMITY

Habit-tic deformity is a type of nail dystrophy caused by repetitive external trauma to the nail matrix [5,11]. It is most frequently observed in adults who unconsciously push the cuticle backward, out of habit [3,5,8]. This autoaggressive nail disorder is considered a habitual behavior rather than an anxiety-related one, and it is not associated with a sense of relief or satisfaction afterward. It is not commonly associated with psychiatric disorders [5,8]. Habit-tic deformity affected both men and women equally [6]. It most commonly affects both thumbs, although it may occur in any finger [2,3,5,8,11]. The cuticle is detached, damaged, or absent, resulting in a pyramidal and markedly elongated lunula [5,6,11]. A central longitudinal depression is typically observed, surrounded by parallel transverse ridges; the nail loses its natural shine and develops a characteristic "washboard" appearance [5,6,8,11]. (Figs. 2a – 2i). In some cases, the patient may also bite the nails and cuticles (Figs. 3a - 3c). Koilonychia, in which the nail becomes concave, is a described consequence of persistent habit-tic deformity [6]. Other associated complications include melanonychia due to friction, secondary infections, and permanent nail dystrophy [3]. The primary differential diagnosis is Heller's median canaliform nail dystrophy [11]. The first line of treatment is to complete habit cessation [5,6,8,11]. Other recommended measures include applying ointment proximally to distally three times daily, behavioral modification techniques, and occlusive bandaging [5,6,8,12]. Another therapeutic option involves applying cyanoacrylate adhesive to the proximal nail plate to serve as a protective barrier against habitual trauma [5,8,12]. A thin layer is applied once or twice weekly, and nail normalization is typically observed after three to six months of continuous treatment [12]. In cases associated with psychiatric disorders, SSRIs may be indicated [5,6].

## HELLER'S MEDIAN CANALIFORM NAIL DYSTROPHY

Heller's median canaliform nail dystrophy is, in most cases, another self-inflicted nail disorder of unknown etiology [3,5,6]. It is an uncommon condition that affects both men and women equally [13]. The clinical presentation closely resembles that of habit-tic deformity, most commonly affecting the thumbs, while the involvement of all nails is exceptional [5,6,8]. It is believed to be caused by microtrauma that damages the nail matrix, resulting in symmetric involvement of the affected nails [13]. Clinically, a central longitudinal depression in the nail plate is observed, with multiple oblique ridges extending laterally in a pattern resembling a fir tree [3,5,8,13]. Unlike habit-tic deformity, this condition is not associated with damage to the cuticle [3,5]. Enlargement of the lunula may also be observed [6]. Differential diagnoses include onychomycosis, lichen planus, Darier's disease, and psoriasis [13]. No treatment has been shown to reverse the nail changes; therefore, management focuses on avoiding potential trauma and employing habit reversal techniques [6,13].

## ONYCHOLYSIS SEMILUNARIS

Onycholysis semilunaris refers to the partial detachment of the nail plate from the nail bed at its distal edge [14]. It is most frequently observed in middle-aged women [8]. The primary cause is excessive cleaning of the subungual space, which leads to trauma and damage to the hyponychium [5,8]. To maintain the subungual area

**Figure 2:** (a) Cuticle absence and multiple transverse ridges giving a washboard-like appearance. (b) Thumbnail with a washboard-like appearance, cuticle absence, and peri-onychotillomania. (c) Thumbnails with transverse ridges, more predominantly on the left, and cuticle absence. (d) Dermoscopy of the left thumbnail showing central ridges and splinter hemorrhages. (e) Marked transverse ridges of both thumbnails. (f) Example of how the cuticle is pushed back, leading to the formation of transverse ridges. (g) Habit of manipulating the left index fingernail. (h) Close-up view of the affected nail surface. (i) Dermoscopy of nail alterations: transverse ridges, deformed lunula, and thickened cuticle.

clean, patients often engage in vigorous manicuring and use hard brushes, chemical agents to clean the distal edge, or excessively manipulate the subungual space with sharp objects [5,6,8]. A vicious cycle tends to develop; injury to the hyponychium progressively enlarges the subungual space proximally, allowing for more accumulation of dirt, which in turn prompts further aggressive cleaning and continued trauma to the area [5,8]. Clinically, the condition presents as asymmetric distal onycholysis without evident inflammation [5,6]. The semilunar detachment if rarely symmetrical, as the separation tends to extend more on one side than the other. Typically, four to six nails are affected, with the nail plate detaching from one-third to one-half of the nail bed [8]. There is no clear predominance of the dominant hand [6]. Secondary colonization with *Pseudomonas aeruginosa* and biofilm formation may occur [5,8]. Differential diagnoses include other causes of onycholysis, such as psoriasis and onychomycosis [8]. In psoriatic onycholysis, a characteristic brown-red margin can be observed, whereas in onychomycosis, the "aurora borealis sign" may be present [6]. Management consists primarily of educating the patient regarding the mechanism and cause; this explanation is often poorly received and may be offensive to some patients [8]. It is recommended to trim all detached portions of the nail and to apply topical antibiotic ointment twice daily to prevent bacterial infection [5,8].

## ONYCHODAKNOMANIA

Onychodaknomania is a self-mutilating behavior in which the patient bites down on their own nails, causing pain. It is frequently observed in patients with underlying psychiatric disorders [5,6,8]. The nails exhibit deep and irregular grooves, along with the nail plate's surface irregularities that correspond to the shape and alignment of the canine and premolar teeth [8]. Punctuate and striate leukonychia may also be present [5,6]. Due to the self-mutilating nature of this behavior, it may result in severe complications, including loss of the terminal phalanx [6]. Management requires an interdisciplinary approach, including

**Figure 3:** (a) Habit of biting the nails with the teeth. (b) Transverse ridges secondary to nail biting. (c) Dermoscopy showing transverse ridges caused by nail biting.

combined pharmacologic treatment of antidepressants and antipsychotics [5,8].

## CONCLUSION

Autoaggressive nail disorders include a group of conditions frequently underdiagnosed and underreported in clinical practice. Their recognition is essential to prevent confusion with other dermatologic or systemic pathologies that present similar nail dystrophies. Knowledge of their clinical manifestations, dermatoscopic features, and potential complications allows for timely assessment and more effective treatment. Due to their multifactorial nature, these disorders require multidisciplinary management, involving dermatology and psychiatry, as well as patient education and family education. There is still a need to develop new management strategies that combine both medical and behavioral components to improve the patients' quality of life.

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